SPECIFICATION

TITLE

ROUTER TABLES

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a continuation in part of parent application 09/636,702, filed August 10, 2000. The parent application is herein incorporated by reference.

FIELD OF THE INVENTION

[0002] The present invention generally pertains to power tools for woodworking. More specifically, the present invention pertains to router tables used with routers. The present invention also pertains to fences used to guide workpieces during cutting.

BACKGROUND OF THE INVENTION

[0003] Woodworking power tools, such as a router mounted on a router table, are commonly used to cut wood workpieces. Typically, a power router and router table assembly has the router mounted underneath table with the router bit facing vertically upward. The router bit extends upward through a hole in the router table and protrudes above the table. Existing router tables have had adjustable fences on top of the table. The wood workpiece can be slid on the table and along the fence to engage and be cut by the router bit.

[0004] Examples of U.S. patents pertaining to wood working power tools, including router and router tables, include the following U.S. Patents:

U.S. Patent No.	Title
404,233	Saw Table Gage
727,337	Guide for Woodworking Machines
1,664,969	Guide for Molder Tables
3,101,104	Safety Device for Saws
3,905,273	Machine Tool Assembly
4,088,164	Portable Router Attachment
4,186,784	Tool Table Construction

4,615,247	Anti-Kickback System
4,719,951	Combination Drill Press, Router and Shaper Table, and Methods of Constructing and Utilizing Same
4,738,571	Routing Apparatus With Dust Extraction System
4,750,536	Router Vacuum Attachment
4,884,604	Guide Fence and Mitre Guide Assembly for Router Mounting Table
5,00,237	Jointer Cutter Guard with Featherboard
5,024,257	Woodworking Machine
5,025,841	Multi-purpose Support Table for a Router
5,042,542	Router Table Gauge
5,139,065	Auxiliary Drop-In Table Top Power Tool Base
5,611,378	Tilting Router Table
5,755,148	Adjustable Fence for a Compound Miter Saw
5,755,319	Safety Power Switch
5,855,234	Router Table Assembly with Microset Throat Plate
5,865,079	Adjustable Workpiece Support Apparatus for a Compound Miter Saw
5,943,931	Adjustable Fence for a Compound Miter Saw
Des 105,621	Shaper Table
Des 248,304	Table for Portable Cutting Tools
Des 273,195	Power Tool Table
Des 334,388	Combination Bench Router and Shaper
Des 343,846	Router Table

[0005] Existing router tables and other wood working power tools have included fences for guiding the wood workpieces during cutting. However, existing fences can be improved. Also, existing woodworking power tools, such as router tables, can be improved. For example, improvements can be made to hold down wood workpieces during cutting.

[0006] One difficulty in accommodating various routers in router work tables is

that there is no universal standard for mounting routers. Positions of attachment mechanisms tend to vary not only from manufacturer to manufacturer, but even within a given manufacturer, depending on the size or other characteristics of the router.

[0007] In order to accommodate different router configurations, various techniques have been employed. For example, according to the Craftsman Router Adapter Plate for Industrial Router Tables: Instructions for Assembly and Installation of Your Model No. 171.25333, January, 1997, a template having concentric circles of various sizes printed on it is attached to a router adapter plate using tape. The router is placed on the adapter plate with the template on, and the location of the base plate mounting holes are marked using a pencil or felt tipped marker. Holes are then drilled at the previously marked hole positions. The template is then removed, and the router is attached to the base plate with screws going through the holes that were previously drilled.

[0008] While this technique permits a base plate to accommodate any router that has been designed with attachment screws/holes, it involves a substantial amount of work on the part of the purchaser. First, it requires that the user have a drill with the correct size drill bits on hand. Second, it requires time and effort to properly drill the required holes. The positions must be properly and accurately marked—while using the template provided is a helpful aid, it is by no means foolproof. Erroneous hole locations could still potentially result—these would be difficult if not impossible to correct. Also, the holes may be required to have a particular countersink to work properly. Purchasing the necessary tools to complete the job result in greater incurred expenses. Furthermore, this process would have to be repeated for each and every different router configuration that might be used.

[0009] In order to eliminate the step of users drilling the holes themselves, adapter plates have been created which can accommodate various router configurations. For example, the Craftsman Router Universal Adapter Plate for Assembly and Operation—Owner's Manual for Model No. 171.25326 provides an adapter plate that is pre-drilled and slotted to accommodate a number of different routers. Although the holes and slots are pre-drilled in this adapter plate, however, various mechanism are utilized by it to minimize the number of holes and slots in the plate. The use of slots to accommodate router configurations of varying sizes does allow flexibility, but results in a mounting that is not as solid as one that exclusively

used holes. There is a small degree of play in the router that results from the use of slots—this results from the inherent strength and stiffness of the material from which the router plate is manufactured. Also, the additional material removed from the adapter plate to make slots, as opposed to holes, results in a weakened plate design over one that uses only holes, and is not as durable. Although the strength could be increased with other techniques such as using stronger material or making the plate thicker, these techniques would result in an increased material and production cost.

[0010] Furthermore, this design requires the use of additional countersink bushings in order to accommodate the various types of countersinks present on different router models. These countersink bushings increase the cost of an adapter plate over a design that doesn't require them, and make the plate more difficult to install.

[0011] For these reasons, it is desirable to have a router adapter base plate that can be quickly connected to a router and provides a strong mounting for the router when the plate-router assembly is mounted on a table.

SUMMARY OF THE INVENTION

[0012] The present invention provides new router tables for use with routers to cut workpieces. The present invention also provides new fences for guiding workpieces during routing. The new fences have feather board flaps which provide support for the workpieces by holding the workpieces securely against a table top. The feather board flaps can reduce chatter and kickback.

[0013] One new router table according to the present invention includes a table top having a top work surface and a router bit hole through the table top. A plurality of support legs are provided below the table top. A safety shield is positioned above the router bit hole. A workpiece fence is slidably positioned on the top work surface, and a feather flap extends from the workpiece fence.

[0014] Preferably, the feather flap is removable from the workpiece fence and can be inserted in various holes through the workpiece fence. The feather flap may have a first portion extending from the workpiece fence and a second portion extending from the first portion downward toward the top work surface of the table top.

[0015] An alternate embodiment is provided in which the feather flap may be constructed from a flat L-shaped strip of resilient material.

[0016] The router table also has a switch box which has an electrical outlet, and ON/OFF switch with a safety key, and a resettable circuit breaker. The table top of the router table has an exhaust hole for removing debris during cutting of the workpiece.

[0017] The workpiece fence has a left workpiece fence which is independent of a right workpiece fence. The left and right workpiece fences have a fence base which is slidable in a front to rear direction on the table top. A fence front is mounted to the fence base and slides in a side to side direction.

[0018] One fence system for guiding a workpiece according to the present invention includes a fence base having a left front edge portion spaced apart from a right front edge portion by a gap. A left fence front is slidably mounted to the left front edge portion of the fence base, and a right fence front is slidably mounted to the right front edge portion of the fence base. A feather flap extends from at least one of the left and right fence fronts.

[0019] An alternate embodiment is provided that provides a dovetail bar that can be used for making various types of joints. Furthermore, the alternative embodiment provides an inventive series of hole group patterns made to accommodate a number of different routers without requiring drilling by the user and without the use of slotted (and less stable) mounting holes.

[0020] Advantages of the present invention may become apparent upon reading this disclosure including the appended claims and with reference to the accompanying drawings. The advantages may be desired, but may not necessarily be required to practice the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] Fig. 1 is a perspective view of a router table according to the principals of the present invention;

[0022] Fig. 2 is an exploded perspective view of the router table of Fig. 1;

[0023] Fig. 3 is an enlarged, partial perspective view of the router table of Fig. 1;

[0024] Fig. 4 is a top plan view of the router table of Fig. 1;

[0025] Fig. 5 is a partial top plan view of the router table of Fig. 1;

[0026] Fig. 6 is a bottom view of the router table of Fig. 1;

[0027] Fig. 7 is a right side elevational view of the router table of Fig. 1;

[0028] Fig. 8 is a perspective view of an alternative embodiment according to the present invention;

[0029] Fig. 9 is an exploded perspective view of an inventive miter guide;

[0030] Fig. 10 is a perspective view of the miter guide and feather flaps for holding a workpiece in place;

[0031] Fig. 11 is a perspective view of a dovetail/boxjoint bar mounted on the table top;

[0032] Fig. 12 is a perspective view of the dovetail/boxjoint bar in use;

[0033] Fig. 13 is a top view of a hole pattern used to accommodate a large variety of different routers; and

[0034] Fig. 14 is a perspective view illustrating mounting a router to the router table.

DETAILED DESCRIPTION OF THE INVENTION

[0035] Although the present invention can be made in many different forms, the presently preferred embodiments are described in this disclosure and shown in the attached drawings. This disclosure exemplifies the principles of the present invention and does not limit the broad aspects of the invention only to the illustrated embodiments.

[0036] One router table 10 according to the present invention is shown in Fig. 1, and the router table 10 is shown partially exploded in Fig. 2. The router table 10 has a flat table top 12 and four support legs 14 attached to the underneath of the table top 12. The table top 12 has a top work surface 16 for supporting a workpiece when routing. Leg extensions (not shown) can be attached to the support legs 14, if desired. Various mounting holes 18 are provided to mount various routers (not shown) to the router table 10 underneath the table top 12. A router bit hole 20 extends through the table top 12 for a router bit 22 (Fig. 4). The table top 12 has a circular-shaped recess 13 (Fig. 6) in the bottom side and concentric with the router bit hole 20 for accommodating a disk-shaped adapter plate that can be mounted to a router.

[0037] A safety shield 24 is provided to protect the operator of the router table during routing. The safety shield 24 has a pivot pin 26 on both the left and right

sides of the safety shield 24. The pivot pins are each rotatably received in left and right eyebolts 28 to pivotally mount the safety shield 24 to the table top 12.

[0038] A front portion of the safety shield 24 is positioned above the router bit hole 20 and a rear portion of the safety shield 24 is positioned above an exhaust hole 30 through the table top 12 (see Fig. 2 for the exhaust hole 30). The left and right pivot pins 26 are positioned at the rear portion of the safety shield 24 in the area of the exhaust hole 30. Accordingly, the front portion of the safety shield 24 pivots upward when a workpiece passes underneath the safety shield 24. Also, the safety shield can be pivoted upward to expose the router bit hole 20 and the router bit 22.

[0039] The safety shield 24 has a top, left and right sides, and front and back sides. The bottom of the safety shield 24 is open to the top surface 16 of the table top 12. The inside of the safety shield 24 is hollow which defines an exhaust flow path from the router bit hole 20 – and the router bit 22 – to the exhaust hole 30 for debris from the workpiece being cut. The debris exhaust flow path runs from the router bit hole 20 rearward and generally parallel to the table top 12, and then downward through the exhaust hole 30, generally perpendicular to the table top 12. The back side of the of the safety shield 24 deflects the debris downward through the exhaust hole 30. A vacuum hose can be connected to the exhaust hole 30 underneath the table top 12 to assist in removing and collecting the debris.

[0040] The left and right sides of the safety shield 24 each have a workpiece pass-through hole 32. The workpiece pass-through holes 32 and the inside area of the safety shield 24 between the workpiece pass-through holes 32 define an open path through the safety shield 24 for the workpiece, as shown in Fig. 7. Portions of two workpiece fences 34 may extend through the workpiece pass-through holes 32 as shown in Fig. 3. Some workpieces may have a small width and will pass through the workpiece pass-through holes 32 without raising the safety shield 24. Some workpieces may have a portion that extends upward from the top face of the workpiece, and that portion may pass through the workpiece pass-through holes 32. Some workpieces may have a width sufficiently large enough that the workpiece will pivot the front portion of the safety shield 24 upward to ride on top of the workpiece as the workpiece is passed by the router bit 22.

[0041] The router table 10 also has a workpiece fence system for guiding the workpiece during routing. The workpiece fence system includes left and right workpiece fences 34 which operate independently from each other. The left and

right workpiece fences 34 are mirror images of each other, and each workpiece fence 34 has a fence base 36 and a fence front 38. The fence base 36 has a substantially flat body 40 with two parallel mounting slots 42 that extend in a front to rear direction. Threaded bolts 42 extend upward from the table top 12 and extend through the mounting slots 42. Knobs 46 are threaded onto the bolts 42 and are used to clamp the fence base 36 in a desired position on the top work surface 16 of the table top 12. Raised areas 48 may be provided to strengthen the fence base 36. Other mechanisms can be used to clamp the fence base 36 in various positions on the table top 12, if desired.

[0042] The fence base 36 has a downwardly extending guide flange 50 along an edge of the flat body 40. The guide flange 50 extends in the front to rear direction and slides in a slot 52 in the table top 12 which also extends in the front to rear direction. The guide flange 50 and the slot 52 restrict the movement of the fence base 36 in the front to rear direction. Of course, the front to rear direction as used in this disclosure includes movement from the front towards the rear and from the rear towards the front.

[0043] An upwardly extending guide flange 54 runs along a front edge of the flat body 40 of the fence base 36 and generally perpendicular to the guide flange 50. The fence front 38 has a slot 56 which receives the guide flange 54. Accordingly, the front fence 38 can slide in a side to side direction on the fence base 36. Fasteners, such as wing nuts 58 and bolts 60 pass through elongated slots 62 (Fig. 4) in a flange 64 of the fence front 38 to adjustably mount the fence front 38 to the fence base 36. Referring to Fig. 2, the front edges having the guide flanges 54 of the left and right fence bases 36 are spaced apart from each other by a gap 55.

[0044] Figs. 4 and 5 show the adjustability of the fence system. Wing nuts 58 can be loosened to allow the left and right fence fronts 38 to independently slide in the side to side direction indicated by the arrows in Fig. 4. A reduced height portion 66 of the fence front 38 can be positioned close to or away from the router bit 22 as desired. Referring to Fig. 5, the knobs 46 can be loosened to allow the left and right workpiece fences 34 to independently slide in the front to rear direction as indicated by the arrows. The fence fronts 38 of the left and right workpiece fences 34 can be positioned aligned with each other (Fig. 4) or offset from each other (Fig. 5) as desired.

[0045] Referring to Figs. 2 and 3, the fence front 38 has a vertical front

workpiece face 68 for guiding the workpiece. A plurality of holes 70 are provided through the fence front 38 at the front workpiece face 68. One or more feather flaps 72 are removably positioned in the holes 70 to hold the workpiece 74 (Fig. 3) securely against the table top 12. The feather flap 72 has a first portion 76 extending from the workpiece fence 34 and a second portion 78 extending from the first portion 76 downward toward the top work surface 16 of the table top 12. An end of the second portion 78 contacts the top of the workpiece 74 and the feather flap 72 resiliently flexes to hold the workpiece 74 down as the workpiece 74 slides along the workpiece fences 34 and under the feather flaps 72. The first portion 76 of the feather flap 72 is substantially parallel to the top work surface 16, and the second portion 78 of the feather flap 72 forms an acute angle with the top work surface 16. The first and second portions 76, 78 of the feather flap 72 have rectangular shapes in cross-section perpendicular to their longitudinal lengths.

[0046] Referring to Fig. 2, holes 70 for the feather flaps 72 can be provided at various locations in the fence front 38 to allow for flexibility in placement of the feather flaps 72. The feather flaps 72 can be used with various types and sizes of workpieces due to the various locations of the holes 70. For example, upper holes 70 have a higher vertical elevation above the table top 12 than lower holes 70 so that the feather flaps 72 can be used with various thicknesses of workpieces.

[0047] Referring to Figs. 1, 2, and 6, the router table 10 has a switch box 80 mounted to the table top 12. The switch box 80 has an electrical plug 82 extending from a housing 84. At least one electrical outlet 86 is provided on a bottom side of the housing 84. An electrical ON/OFF switch 88 is provided on a front side of the housing 84. The ON/OFF switch 88 has safety key 90 which is engageable and disengagable with the ON/OFF switch 88 to enable and disable the switch 88. A resettable circuit breaker 92 provides electrical overload protection for the switch box 80.

[0048] Inside the housing 84, the switch box 80 is wired such that the electrical plug 82 provides incoming power to the ON/OFF switch 88. The ON/OFF switch 88 is wired to the outlets 86 and turns the power ON or OFF to the outlets 86 depending on whether the safety key 90 is in the switch 88 and the position of the switch 88. The circuit breaker 92 is wired between the electrical plug 82 and the switch 88 to cut power to the switch 88 and the outlets 86 and turn off the router or other device plugged into the outlets 86 during an overload situation.

[0049] An alternate embodiment of the inventive router table can be seen in Fig. 8. In Fig. 8, the router table 110 has a flat table top 112 and four support legs 114 attached to the underneath of the table top 112. The table top 112 has a top work surface 116 for supporting a workpiece when routing. Leg extensions (not shown) can be attached to the support legs 114, if desired. Various mounting holes (Fig. 13, A-H) are provided to mount various routers to the router table 110 underneath the table top 112. A router bit hole 120 extends through the table top 112 for a router bit 22. The router table 110 has a switch box 180 mounted to the table top 112. A safety shield 24 is provided to protect the operator of the router table during routing. The router table 110 also has a workpiece fence system 134 for guiding the workpiece during routing. The alternative embodiment shares numerous similar features with the previously described embodiment, but there are also a number of additional features.

[0050] Referring to Figures 8 through 10, a miter guide 200 is provided for feeding a workpiece 250 into the router at various angles. Note that Figure 8 shows a standard miter guide 200 '; however, the inventive miter guide 200 shown in Figures 9 and 10 can also be utilized with the router table. Although the inventive router guide 200 is illustrated as being used with a router, it is understood that this router guide could be used with a shaper, a mill, a sanding machine, a band saw, or any other tool that fits the miter guide 200 and that permits feeding work at an angle.

[0051] The miter guide 200 comprises a protractor 202, the protractor 202 having an approximate D-shape, or a half-circular shape, being flat on a side that interacts with the workpiece 250 providing force in a horizontal direction, and circular shape on the other side. The protractor 202 also comprises a protractor adjustment slot 204 that is parallel the half-circular shaped edge of the protractor 202 (permitting angular adjustment of the protractor) and an angular scale comprising angular measurement indicator. The protractor 202 may be constructed of any material that is rugged enough to serve the purpose of feeding a workpiece 250 into the router, such as cast steel or plastic.

[0052] The miter guide 200 also comprises a miter bar 214 that is attached to the protractor using, for example, bolt 218 that passes through a bolt hole 217 in the miter bar 214 and that may screw directly into the base of the protractor 202. The miter bar 214 may also be attached to the protractor 202 using a bolt 216 that passes through the protractor adjustment slot 204 and that further screws into a

knob 210 after passing through a washer 212.

[0053] The miter bar 214 is designed to ride inside of the miter guide channel 162 (Figure 8) and permit movement of the miter guide in a linear direction parallel to the front edge of the table top 112.

[0054] The angle of the protractor 202 may be adjusted by loosening the knob 210, adjusting the router to the correct angle, and tightening the knob 210 so that the angle of the protractor does not change. The angle adjustment is assisted by a miter pointer 206 having a positioning mark, the miter pointer 206 being affixed to the miter bar 214 with a screw 208.

[0055] The miter guide also comprises a slide guide 220 that may be designed to fit into slide guide slots 230 on the flat side of the protractor. The slide guide 220 is a strip of resilient material that has been formed to have a flat end fitting into the slide guide slots.

[0056] Note that other mechanisms for attaching a slide guide 220 to the protractor 202 are possible, as are other physical shapes for the slide guide 220. What is important is that a resilient element is physically attached to the protractor that applies pressure to the workpiece 250 and stabilizes its relative position by using friction resulting from this pressure.

[0057] This slide guide 220 helps to hold the workpiece 250 firmly in place by applying pressure in a downward direction to force the workpiece 250 against the table top 112 creating friction that helps prevent movement of the workpiece at an angle other than that permitted by the protractor 202.

[0058] In the exemplary embodiment, the slide guide 220 has a flattened end 222 that is inserted into one of the slide guide slots 230. The flattened end extends horizontally for approximately 3 cm before the first curve. Proceeding from the flattened end 222 to the workpiece contact end 228 is a downward sloping region 224 of a length approximately 4.5 cm that turns into a contacting bend 226. The contacting bend 226 is the portion of the slide guide 220 that delivers the downward force to the workpiece 250. The contacting bend is adjacent to the workpiece contact end 228 of the slide guide 220. The contact end 228 of the slide guide 220 is approximately 2 cm in length. In the exemplary embodiment, the slide guide 220 has a width of approximately 2 cm, and a thickness of approximately 3mm. It may be composed of a material such as ABS plastic. These precise dimensions are not

crucial—it should be understood that what is important is that the slide guide 220 serves to hold the workpiece 250 firmly in place by applying pressure in a downward direction.

[0059] More than one slide guide slot 230 may be provided that permits a height adjustment of the slide guide 220 so that the miter guide 200 can accommodate various wood thicknesses and/or apply varying amounts of force to the workpiece. It is to be understood that the particular shape in the embodiment described above is not the only shape possible. Numerous shapes can be utilized in addition to the one mentioned above. For example, the bend could be cut at its center, leaving the workpiece contact end to be an actual end in contact with the workpiece 250. What is important is that the slide guide provides a mechanism for delivering a downward force on the workpiece 250 against the table top 112 for stabilization. Furthermore, other mechanisms for attaching the slide guide to the protractor are possible, such as a screw, nut and bolt, etc., that can easily be envisioned by practitioners in the field.

[0060] The protractor 202 also comprises hold-down slots 232 that can be used for affixing a larger push surface to the flat side of the protractor 202. When used, a large push surface (such as a board) can be fastened to the protractor 202 using fasteners that are placed through the hold-down slots 232.

[0061] In this alternative embodiment, the featherboard flaps 172 (Figs. 8, 10) comprise a flat L-shaped strip of resilient material, the L-shape defining two legs: a mounting leg that attaches to the flat table top 112 or the workpiece fence 134, and a workpiece contacting leg that applies force to a workpiece. The two legs may be of varying lengths, thus defining a long leg and a short leg. The short leg may be either a mounting leg or a workpiece contacting leg, and visa versa.

[0062] The featherboard flaps 172 provide support for the workpiece by holding it securely, which helps to minimize chatter and kickback.

[0063] The featherboard flaps 172 may be made of any resilient, non-rigid material such as plastic (e.g., ABS) or metal that inserts into the featherboard flap holes 166 (Figure 8) of the workpiece fence 134. The featherboard flap holes 166 may be angled such that the mounting leg of each featherboard flap 172 is inserted at an angle so that the workpiece leg of the L-shaped strip defines a line that does not intersect the flat table top 112 perpendicularly, but rather intersects it at an angle so that the resilience in the workpiece contact leg provides downward pressure to

the workpiece in a direction perpendicular to the surface of the flat table top 112, thus utilizing friction between the table top and the bottom surface of the workpiece to stabilize the position and movement of the workpiece. Additional friction is provided between the bottom edge of the featherboard flap and the top surface of the workpiece for position and movement stabilization.

[0064] An additional featherboard flap 172 of the shape described above may have its mounting leg inserted into a featherboard flap hole 164 of the flat table top 112 at an angle that provides a force in a similar manner described above, with the exception that the workpiece contacting leg of the featherboard flap is inserted at an angle such that the workpiece leg of the L-shaped strip defines a line that does not intersect the front surface of the workpiece fence 134 perpendicularly, but rather intersects it at an angle so that the resilience in the workpiece contact leg provides inward pressure to the workpiece in a direction perpendicular to the front surface of the workpiece fence 134.

[0065] The holding pressure of the featherboard flaps 172 can be varied by switching between putting the long leg or the short leg of the featherboard flaps 172 in the featherboard flap holes 164, 166. The holding pressure can be further varied by varying the length of the exposed mounting leg.

[0066] The featherboard flap 172 may be constructed having a thickness of 3 mm. The width of the featherboard flap may also be constructed as having a width of approximately 2 cm. When the featherboard flap is constructed as having different length legs for the L-shape, the longer leg may be approximately 10.5 cm in length (total length from edge to edge), and the shorter leg may be approximately 6.5 cm in length (total length from edge to edge). The featherboard flap 172 may have a hole drilled in one end through which, for example, a pin can be driven to keep the featherboard flap 172 in the featherboard flap holes 164, 166.

[0067] According to Figs. 11 and 12, a dovetail/boxjoint bar 302 may be provided for producing dovetail joints, box joints, and combination joints. The dovetail joint bar 302 is a bar that may have a rectangular cross section and that may be affixed in any suitable manner to the flat table top 112 that permits a horizontal position adjustment; in the exemplary embodiment, the dovetail/boxjoint bar is mounted directly on the flat table top 112.

[0068] In this exemplary embodiment, the dovetail joint bar 302 is affixed to the table top 112 utilizing dovetail/boxjoint bar sliding screws 314 placed through

respective mounting holes 304 of the dovetail bar 302 and dovetail bar mounting slots 306 of the table top 112. The dovetail bar mounting slots 306 permit the dovetail joint bar 302 to be moved in a horizontal direction (i.e., the bar forming a perpendicular to the front face of the workpiece fence 134) toward and away from the router bit 22—any given position thus being defined as the horizontal position of the dovetail bar 302.

[0069] Dovetail nuts 216 are attached to a threaded end of the sliding screws 214 to securely mount the dovetail bar 302 to the table top 112. The horizontal position of the dovetail bar 302 is defined by using a spacer bar 210 that corresponds in with to the router bit 22 and the dovetail/boxjoint bar 302; the width of the dovetail/boxjoint bar 302 should match the width of the router bit 22, which may be, for example, 3/8" or 1/4" (the spacer bar is removed during operation; it is only used to space the dovetail/boxjoint bar 302 from the router bit 22). This method of fastening the dovetail/boxjoint bar 302 described above is exemplary, and it is to be understood that other mechanisms for affixing the dovetail/boxjoint bar 302 to the table top 112 are within the scope of the invention.

[0070] According to Fig. 12, combined workpieces 318 (shown staggered), are shown using the dovetail/boxjoint bar 302 for spacing the cuts. A previous cut is placed over the dovetail/boxjoint bar 302 and the combined workpieces 318 are moved in a direction parallel to the dovetail/boxjoint bar 302, thus producing another cut. This new cutout is then positioned over the dovetail/boxjoint bar 302 and the process is repeated.

[0071] The use of a single isolated bar as the dovetail bar is advantageous in that it represents an inexpensive and easy to use mechanism for creating dovetails and other types of joints.

[0072] Figs. 13 and 14 illustrate the inventive hole pattern for mounting various routers to the router table. The four holes designated with the reference character A form a group (Group A) of holes used to mount a square adapter plate (not shown) that can be drilled out for routers that mount with a hole pattern different from those provided by the invention. The precise position of the Group A holes is not critical, provided they match the hole positions provided in the square adapter plate.

[0073] The four holes designated with the reference character B form a group of holes (Group B) used to mount a type-B router to the router table. Examples of

such type-B routers are Ryobi® models R160K, R160V, R165 and R180, and Craftsman® models 27500, 27510 and 27511.

[0074] The two holes designated with the reference character C form a group of holes (Group C) used to mount a type-C router to the router table. Examples of such type-C routers are Ryobi® models R174 and RE175.

[0075] The relevant information pertaining to the holes in Group B and Group C is as follows:

Feature	Measurement (distances in mm)	Description
RBC	60.97	The distance from the router bit hole 120 center to the center of holes B2, B4, and B1C1.
RBC1	58.36	The distance from the router bit hole 120 center to the center of hole B3C2.
$\theta_{B2,B3C2}$	106°	The angle separating the centers of holes B2 and B3C2 with respect to the center of the router bit hole 120.
$\theta_{B3C2,B4}$	74°	The angle separating the centers of holes B4 and B3C2 with respect to the center of the router bit hole 120.
$\theta_{B4,B1C1}$	119°	The angle separating the centers of holes B4 and B1C1 with respect to the center of the router bit hole 120.
$\theta_{B1C1,B2}$	61°	The angle separating the centers of holes B2 and B1C1 with respect to the center of the router bit hole 120.
R_{BL}	4.1	The non-countersink radius of holes in hole groups B and C at a bottom surface.
R_{BU}	8.25	The countersink radius of holes in hole groups B and C at an upper surface.
D_B	6.25	The depth of the countersink of holes in hole groups B and C.

Table 1

[0076] The three holes designated with the reference character D form a group of holes (Group D) used to mount a type-D router to the router table. Examples of such type-D routers are Porter Cable® models 690 and 6931.

[0077] The relevant information pertaining to the holes in Group D is as follows:

[0078]

Feature	Measurement (distances in mm)	Description
R_D	58.75	The distance from the router bit hole 120 center to the center of holes D1, D2 and D3.
θ_{D_1,D_2}	120°	The angle separating the centers of holes D1 and D2 with respect to the center of the router bit hole 120.
θ_{D_2,D_3}	120°	The angle separating the centers of holes D2 and D3 with respect to the center of the router bit hole 120.
θ_{D_3,D_1}	120°	The angle separating the centers of holes D3 and D1 with respect to the center of the router bit hole 120.
R_{DL}	2.9	The non-countersink radius of holes in hole groups D and E at a bottom surface.
R_{DU}	5.25	The countersink radius of holes in hole groups D and E at an upper surface.
D_D	4	The depth of the countersink of holes in hole groups D and E.

Table 2

[0079] The three holes designated with the reference character E form a group of holes (Group E) used to mount a type-E router to the router table. Examples of such type-E routers are Skil® models 1823, 1835 and 1845-02, and Craftsman® models 17504, 17505, and 17506.

[0080] The relevant information pertaining to the holes in Group E is as follows:

Feature	Measurement (distances in mm)	Description
R_E	59	The distance from the router bit hole 120 center to the center of holes E1, E2 and E3.
θ_{E_1,E_2}	120°	The angle separating the centers of holes E1 and E2 with respect to the center of the router bit hole 120.

θ_{E_2,E_3}	120°	The angle separating the centers of holes E2 and E3 with respect to the center of the router bit hole 120.
θ_{E_3,E_1}	120°	The angle separating the centers of holes E3 and E1 with respect to the center of the router bit hole 120.

Table 3

[0081] Note that the radius and countersink dimensions for holes in group E are identical to those in group D.

[0082] Two holes designated with the reference character F form a group of holes (Group F) used to mount type-F rotary tools to the router table. This group includes Dremel® Hobby tools and other similarly configured rotary tools.

[0083] Hole G is provided as a threaded hole for a pilot pin. Hole H is provided as a pilot pin storage hole, and the slots I are the dovetail/boxjoint fixture mounting slots 306.

[0084] Fig. 14 illustrates the mounting of a router to the table. Router 142 is inverted and attached to a bottom surface of the table top 112, using a fastener 146 that passes through one of the table top holes and into a router hole 144.

[0085] While the presently preferred embodiments have been illustrated and described, numerous changes and modifications can be made without significantly departing from the spirit and scope of this invention. Therefore, the inventor intends that such changes and modifications are covered by the appended claims.